



Glen R. Unwin
Industrial Technology / CNC Machining
East Buchanan Community School
Geater Machining and Manufacturing

Part I: Overview of Business

- Geater Machining and Manufacturing started a metal manufacturing facility in Independence, Iowa in 1962.
- Produces precision metals parts for the aerospace, electronic and various high technology industries.
- GMM is committed to meeting or even exceeding client requests regarding; rapid prototyping, and producing precision metal parts in a timely manner.
- GMM is an excellent corporate citizen with its ongoing support of adjacent school districts.

Part II: Job Specifics

- Convert 3-D modeled parts into toolpaths for the CNC milling machines with the use of Mastercam software.
- Create efficient toolpaths for removal of material.
- Utilize Vertical Haas CNC machines in order to produce extremely accurate parts for the avionics industry.
- Evaluate parts for adherence to predetermined tolerances, feature verification, surface finish and manually inspect/deburr aluminum parts.

Part III: Introduce the Problem

- The students will research of existing cell phone holders.
- In groups, students will be given design constraints regarding the the design of a universal cell phone holder. Students will be given the expectation to utilize the steps of the Engineering Design Process.
- The students will be expected to use Mastercam 2017 to program the tool pass for the CNC machine.

Part IV: Background

- Knowledge of multiview drawing.
- Experience with making parts with 3-D modeling software. (SolidWorks and Mstercam)
- Understanding of manual milling operations.
- Can create geometry and toolpaths using Mastercam.

Part V: Business Solution

- The business will supply expertise in programming Mastercam.
- Students will be able to physically visit or Skype with GMM employees.

Part VI: Student Solutions

- Students may come up with solutions for a free standing cell phone stand.
- Students may come up with durable/recreational cell phone stands (boating, hiking, etc.).